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STATUS OF *EULIMA SUBCARINATA* ORBIGNY, 1842  
 AND *E. CAROLII* DALL, 1889 (GASTROPODA: MELANELLIDAE)<sup>1</sup>

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ABSTRACT

*Eulima subcarinata* Orbigny, 1842, is redescribed and transferred to the genus *Eulimostraca* Bartsch, 1917. The species occurs from the Caribbean and Yucatan to intermediate-depth shelf waters off Florida and North Carolina. Confusion regarding the species' identity is discussed. *Eulima carolii* Dall, 1889 (formerly affinis *C. B. Adams*, 1850, non *Philippi*, 1844) is considered a nomen dubium.

Orbigny (1842) introduced the name *Eulima subcarinata* for a small melanellid from Guadeloupe, West Indies. Among the characters included in his Latin description (1845) were "*anfractibus octonis. . . linea fulva ornatis, ultimo subcarinato*", expanded in French (1853) as "*le dernier [tour] un peu caréné en avant. . . Couleur. Blanc uniforme avec une légère bande jaunâtre ou fauve sur la partie carénée antérieure*." His illustrations (1842, pl. XVI, Figs. 4-6) were somewhat schematic, depicting a shell

of typical, unornamented melanellid form but with a peripheral line suggesting a low carina on the last whorl.

Mörch (1875) reported the species from St. Thomas [Virgin Islands]; and Dall (1889a) extended the range to the southeastern United States. No subsequent records have appeared, although the name has been continuously used in compilation lists of western Atlantic marine mollusks.

I recently examined the holotype of *Eulima subcarinata*, presently in the British Museum of Natural History [BM(NH)]. The shell (Fig. 1a),

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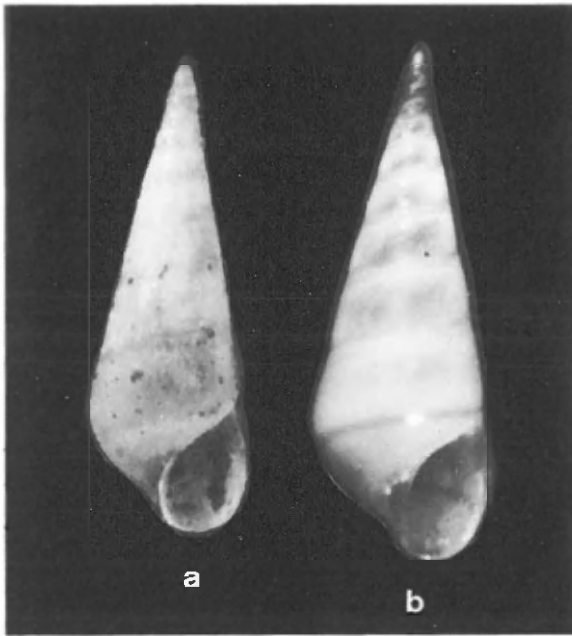


FIG. 1. *Eulimostraca subcarinata* (Orbigny, 1842): a. holotype, 3.1 mm, Guadeloupe; b. adult shell, 3.4 mm, off Egmont Key, Florida, FSBC I 10886 (both  $\times 20$ ).

although faded, badly worn, and possessing a large hole drilled by another gastropod on the back side of the penultimate whorl, agrees in all other respects with Orbigny's description. It is conspecific with others from U. S. Fish Commission (USFC) collections in the National Museum of Natural History (USNM), Washington, D.C., and additional shells in the Delaware Museum of Natural History (DMNH), Greenville, Delaware, and the Florida Department of Natural Resources Marine Research Laboratory (FSBC I), St. Petersburg, Florida. These specimens have allowed a more complete description of the species and better understanding of its phylogenetic position and its geographic and bathymetric range. In addition, some of the specimens create doubt regarding the accuracy of Dall's (1889a) treatment of several melanellids from the southeastern United States.

***Eulimostraca subcarinata* (Orbigny, 1842)**

*new combination*

(Figs. 1a, b)

*Description.* Shell small, length to about 3.6 mm, straight, glossy, with evenly tapering, slightly convex whorls. Protoconch extremely sharp,

slender, of about  $3\frac{1}{2}$  whorls, merging almost imperceptibly with spire. Teleoconch with about  $6\frac{1}{2}$  smooth, slightly convex whorls; central portion of each whorl light golden brown, with a thin, brown spiral line at each suture; periphery of body whorl rounded, with a distinct brown spiral line. Aperture about  $\frac{1}{4}$  shell length, broadly ovate, rounded but not extended anteriorly, slightly attenuated behind; posterior half of outer lip brown, color diminishing anteriorly at termination of peripheral line; inner lip dark brown, curved, thickened, forming a shallow, narrow umbilical depression.

*Material examined:* HOLOTYPE: BM(NH) Reg. no. 1854. 10.4.141, cat. no. 129; 1 dead, length 3.1 mm, Guadeloupe. NORTH CAROLINA: 1 dead, USFC sta. 2597, south southwest of Cape Hatteras, 27 m (USNM 97516); 2 dead, USFC sta. 2598, south southwest of Cape Hatteras, 40 m (USNM 94570); 1 dead, 3.2 mm, USFC sta. 2608, off Cape Lookout, 40 m (USNM 83274); 1 dead, USFC sta. 2608 (same) (USNM 94803); 5 dead + 1 fragment, 2.0-2.5 mm, USFC sta. 2608 (same) (USNM 97530); 1 dead, 3.3 mm, USFC sta. 2610, southeast of Cape Lookout, 40 m (USNM 92810); 1 dead, USFC sta. 2610 (same) (USNM 97515); 3 dead, USFC sta. 2611, southeast of Cape Lookout, 57 m (USNM 92809). FLORIDA: 1 dead, RSP sta. 003,  $28^{\circ} 37' N$ ,  $80^{\circ} 11.2' W$ , off Cape Canaveral, 40 m, January 16, 1973 (FSBC I 11177); 2 dead, RSP sta. 003 (same), November 2, 1973 (FSBC I 11178); 6 dead, RSP sta. 003 (same), November 5, 1974 (FSBC I 11179); 1 dead, south of Dry Tortugas, 192 m (DMNH 114557); 4 dead, 2.6-3.1 mm, west of Naples, 55 m (FSBC I 15030); 1 dead, Hourglass sta. K,  $26^{\circ} 24' N$ ,  $82^{\circ} 58' W$ , off Sanibel Island, 37 m, November 14, 1967 (FSBC I 10885); 1 dead + 5 fragments, Hourglass sta. L,  $26^{\circ} 24' N$ ,  $83^{\circ} 22' W$ , off Sanibel Island, 55 m, September 5, 1966 (FSBC I 10884); 1 dead, 60 mi (97 km) west southwest of Johns Pass, 68 m (DMNH 114556); 4 dead, south southwest of Johns Pass, 62 m (DMNH 114553); 1 dead, 3.6 mm, west southwest of Johns Pass, 46 m (DMNH 114552); 2 dead, 3.3-3.4 mm, Hourglass sta. B,  $27^{\circ} 37' N$ ,  $83^{\circ} 07' W$ , 18 m, November 2, 1967 (FSBC I 10886); 2 dead, Clearwater Beach (DMNH 114555). MEXICO: 1 dead, northeast of Contoy Light, Yucatan, 119 m (DMNH 114554).

*Range:* Off North Carolina, both coasts of Florida, and Yucatan, 18-192 m; St. Thomas (?) and Guadeloupe, West Indies.

*Remarks:* Orbigny's species belongs to the genus *Eulimostraca* Bartsch, 1917, a group of small melanellids with slender, acute apices, flattened to slightly rounded whorls, broadly ovate apertures, and brown markings on the shell. Keen (1971) listed two eastern Pacific species, including *E. galapagensis* Bartsch, 1917, the type species of *Eulimostraca*. This species is quite similar to *E. subcarinata*, but apparently has more slender anterior whorls and lacks brown marking on the columella or inner lip. *Eulimostraca bartschi* Strong and Hertlein, 1937, from Mazatlan, west Mexico, lacks a brown spiral line and is considerably smaller, having nine whorls in a total length of only 1.8 mm. No western Atlantic species have been previously assigned to *Eulimostraca*, but several evidently belong here, including *Eulima hemphillii* Dall, 1884 (subsequently placed in *Leiostraca*, *Melanella*, and *Strombiformis* by various authors), and several other species, presently undescribed, which occur in the Bahamas and off both Florida coasts.

Shell color and peripheral markings of *E. subcarinata* (Fig. 1b) are strikingly like those of *Niso aeglees* Bush, 1885. The two species occur together throughout at least the continental range of *E. subcarinata*, but can hardly be confused. The shell of *Niso aeglees* is larger, broader, and strongly umbilicate.

The holotype of *Eulima subcarinata* is a nearly mature shell still bearing suggestions of the angled periphery common on juveniles of many melanellid species. This feature is probably the source of Orbigny's description of peripheral carination, for fully mature adults lack such angulation. Tryon (1886) reported the last whorl to be "obtusely carinated", but his illustration (pl. 69, Fig. 44) depicted a shell with both a peripheral carina and numerous well defined axial striae nearly the size of riblets, the latter character unknown on any western Atlantic melanellid. It is quite dissimilar from Orbigny's illustration and from the holotype.

Dall (1889a) briefly reviewed the West Indian Eulimidae (=Melanellidae). He did not mention

Tryon's figure of *E. subcarinata*, but assigned another on the same plate (pl. 69, Fig. 36) to that species. Tryon had assigned that figure to *E. oleacea* Kurtz and Stimpson, 1851, but Dall stated it was not appropriate for that species. The figure is too small and imprecise to be assigned with certainty to either species. Dall also extended the range of *E. subcarinata* from the Antilles to Florida and [Cape] Hatteras, but his concept of this "carinate" species may have been influenced incorrectly by Orbigny's description and Tryon's later error. All USNM specimens designated *E. subcarinata* by Dall have proved, upon inspection, to be worn shells of various other melanellids, usually with the lip broken back to produce a "carina" on the penultimate whorl.

C. B. Adams (1845) described *Eulima jamaicensis*, and soon thereafter (1850) described five additional melanellid species (*E. affinis*, *E. arcuata*, *E. conica*, *E. fulvocincta*, and *E. gracilis*) from Jamaica. Dall (1889a) recognized *arcuata*, *gracilis*, and *jamaicensis* as valid species, synonymized *fulvocincta*, and proposed a new name for *affinis*, pointing out that Adams' name was preoccupied by *Eulima affinis* Philippi, 1844. He renamed Adams' species *Eulima carolii*. Dall suggested that he had examined the types of *arcuata* and *jamaicensis*, and evidently had access to Adams' specimens of *conica* and *fulvocincta* as well (Lyons, 1977), but there is no evidence to indicate he had seen Adams' type of *affinis*.

Dall's concept of Adams' *affinis* was apparently incorrect. He (1889a) applied most Adams' names to other specimens of western Atlantic Melanellidae, identifying eight lots as *E. carolii* and redefining its range to include "Florida to North Carolina, in 8-63 fms" (15-105 m). Dall's *carolii* material actually contains several species, with most specimens in very poor condition. Five of the lots, all USFC collections from off North Carolina, contain *Eulimostraca subcarinata*. However, neither his 15-meter nor his 105-meter lot, from which he established the bathymetric range of *carolii*, contain *subcarinata*. The type of *affinis* Adams is missing (Clench and Turner, 1950), but its description fits none of Dall's material especially well. Adams' description of *affinis* was brief, being a comparison of several characters separating it from *Eulima conica*

which he described on the same page. He noted *E. conica* to be white; by inference, this must apply to *affinis* as well, demonstrating that the brown-marked *subcarinata* specimens are not *carolii*. Apparently, none of Dall's material is actually *carolii*, and his records should be rejected. Until Adams' type is located, the name should be considered a *nomen dubium*. To my knowledge, no subsequent specimens of *E. carolii* have been reported, although the name has appeared on several faunal lists (Dall, 1889b; Johnson, 1934; Abbott, 1974) repeating Dall's information.

Identity of specimens Dall (1889a: p. 329) mentioned "with brown varices and a brown peripheral line, which I have only fragments insufficient fully to characterize" is uncertain. He was probably referring to three additional unidentified lots of USFC material also containing *E. subcarinata*, but none of these shells have brown varices (areas of arrested shell growth where color markings sometimes occur on melanellids). *Eulimostraca subcarinata* lacks such markings. It is possible that Dall's remark referred to the brown marking on the posterior portion of the outer lip of *E. subcarinata*, but there is only one such marking per shell on that species, whereas Dall implied more than one brown varix. At least one of the undescribed south Florida *Eulimostraca* has brown varices, but it lacks a peripheral line. Moreover, I found no specimens of that species in collections available to Dall.

Mörch's (1875) record of *E. subcarinata* from St. Thomas must remain in question until the specimens are examined. It could have been *Eulima auricincta* Abbott, 1958, a shell of similar size, with a slightly angled periphery on the penultimate whorl and bearing a brown or golden band on each whorl. The latter is common in beach drift throughout the northern Caribbean.

Beached specimens of *Eulimostraca subcarinata* are rare; I have seen only the lot from Clearwater Beach, Florida (DMNH 114555), although Orbigny's type and Mörch's record, if correct, may have been similarly obtained. In the southeastern United States, the species is evidently most common along the intermediate portion of the continental shelf in depths of about 18 to 62 m. Such occurrence often indicates northern

submergence of shallow-water Caribbean species, but I have not seen *E. subcarinata* among many melanellids from shallow collections in the Florida Keys and Bahamas. I have examined only single juveniles (1.6, 1.8 mm), from off Dry Tortugas and Yucatan respectively, taken from depths greater than 62 m, suggesting that adult populations may not occur at greater depths.

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